Claims

1. (Previously Presented) An active arc suppression circuit of the type for suppressing an arc between mechanical relay contacts, the arc suppression circuit comprising in combination:

A. a power relay having (i) a first relay contact end connectable to one portion of a circuit, (ii) a second relay end connectable to a second portion of said circuit, and (iii) at least one electro-mechanical relay contact element intermediate the first relay contact end and second relay end, the mechanical relay contact element being moveable from a closed relay contact position in electrical communication with the first relay contact end to an open relay contact position distal from the first relay contact end;

B. an active shunt relay connected across said one portion of said circuit and said second portion of said circuit;

C. a power-off signal supply;

D. an active shunt relay timing controller section in communication with the power-off signal supply and said solid state shunt relay; and

E. a contact open delay controller section in communication with the power-off signal supply and to said power relay;

whereby the active shunt relay may temporarily shunt current from said one portion of said circuit to said second portion said circuit while the electro-mechanical relay contact element moves from said closed relay contact position toward said open relay contact position.

2. (Original) The active arc suppression circuit of claim 1 wherein (i) the power-off signal supply comprises an electrical signal supply connected to an isolator input on a first electrical current isolator, and (ii) the active shunt relay comprises a solid state shunt switch connected to an isolator output on said first electrical current isolator, whereby the solid state shunt switch switches on in response to a power-off signal transmitted from the electrical signal supply through said first electrical current isolator to the solid state shunt switch.

3. (Original) The active arc suppression circuit of claim 1 wherein said power relay is an electro-mechanical relay and has an inductive armature drivably connected to the electro-mechanical relay contact element.

4. (Original) The active arc suppression circuit of claim 2 wherein said power relay comprises an electro-mechanical relay and has an inductive armature drivably connected to the electro-mechanical relay contact element.

5. (Original) The active arc suppression circuit of claim 1 wherein the contact open delay controller section comprises a delay circuit connected to a solid state delay relay.

6. (Original) The active arc suppression circuit of claim 2 wherein the contact open delay controller section comprises a delay circuit connected to a solid state delay relay.

7. (Original) The arc suppression circuit of claim 3 wherein the contact open delay controller section comprises a delay circuit connected to a solid state delay relay.

8. (Original) The active arc suppression circuit of claim 4 wherein the contact open delay controller section comprises a delay circuit connected to a solid state delay relay.

9. (Original) The active arc suppression circuit of claim 5 wherein the solid state delay relay comprises a delay transistor and wherein the contact open delay controller further comprises an electrical current isolator intermediate the delay circuit and the delay transistor.

10. (Original) The active arc suppression circuit of claim 6 wherein the solid state delay relay comprises a delay transistor and wherein the contact open delay controller further comprises a second electrical current isolator intermediate the delay circuit and the delay transistor.

11. (Original) The active arc suppression circuit of claim 7 wherein the solid state delay relay comprises a delay transistor and wherein the contact open delay controller further comprises an electrical current isolator intermediate the delay circuit and the delay transistor.

12. (Original) The arc suppression circuit of claim 8 wherein the solid state delay relay comprises a delay transistor and wherein the contact open delay controller further comprises a second electrical isolator intermediate the delay circuit and the delay transistor.

13. (Currently amended) A power controller system of the type controllable by a power control separate from the power controller system, the power controller system comprising in combination:

A. a power controller housing;

B. a network communication client disposed [[is]] in association with the power controller housing;

C. a power source penetrating the power controller housing;

D. at least one electrical output disposed in the power controller housing; and

E. at least one current shunting arc suppression power switching circuit disposed in the power controller housing and being in communication with the network communication client, said current shunting arc suppression power switching circuit comprising:

(i) a power switch relay disposed in the power controller housing and having mechanical contacts, a power input connection connected to the power source, and a power output connection connected to the one electrical output;

(ii) a solid state shunt relay disposed in the power controller housing intermediate the power input connection of the power source and the one electrical output;

(iii) a shunt relay controller section disposed in the power controller housing in communication with the network communication client and the solid sate shunt relay; and

(iv) a power switch delay controller section disposed in the power controller housing in communication with the power signal supply and said power switch relay.

14. (Original) The power controller system of claim 13 having a plurality of a plurality of electrical outputs disposed in the power controller housing and a plurality of said current shunting arc suppression power switching circuits disposed in the power controller housing, each among the plurality of electrical outputs being connected to a corresponding one among the plurality of current shunting arc suppression power switching circuits.

15. (Original) The power controller system of claim 14 wherein each power switch relay further comprises: (i) a mechanical switching element moveable between said mechanical contacts; and (ii) an induction armature connectable to the mechanical switching element and being in communication with said power switch delay controller.

16. (Original) The power controller system of claim 13 further comprising a power controller application connectable to a network and through said network to said network communication client.

17. (Original) The power controller system of claim 14 further comprising a power controller application connectable to a network and through said network to said network communication client.

18. (Original) The power controller system of claim 15 further comprising a power controller application connectable to a network and through said network to said network communication client.

19. (Original) A power controller comprising in combination:

A. a power controller housing;

B. at least one electro-mechanical relay disposed in the power controller housing and having at least one relay contact providing means for switching off electricity between a power source and an electrical load;

C. at least one solid state shunt switch disposed in the power controller housing and providing solid state shunting means for switchably shunting electricity from the power source to the electrical load, and

D. timing controller means for first turning on the solid state shunting means, then opening said relay contact, and then turning off the solid state shunting means.

20. (Original) The power controller of claim 19 also including network client means for receiving a power control message over a communications network, said network client means being in communication with said timing controller.

21. (Original) The power controller of claim 19 wherein the timing controller is disposed in the power controller housing.

22. (Currently amended) The power controller of claim [[19]] 20 wherein the timing controller and the network client means are disposed in the power controller housing.

23. (Original) The power controller of claim 19 including a plurality of said electro-mechanical relays and a plurality of solid state shunting switches, with each said electro-mechanical relay being associated with a corresponding one among the plurality of solid state shunting switches.

24. (Original) The power controller of claim 23 further comprising a network client means for independently receiving a power control message for each said electro-mechanical relays and its corresponding solid state shunting switch.

25. (Previously Presented) The power controller of claim 21 also comprising a plurality of said electro-mechanical relays and a plurality of solid state shunting switches, with each said electro-mechanical relay being associated with a corresponding one among the plurality of solid state shunting switches, and further comprising network client means for independently receiving a power control message for each said electro-mechanical relays and its corresponding solid state shunting switch.

26. (Previously Presented) The power controller of claim 22 also comprising a plurality of said electro-mechanical relays and a plurality of solid state shunting switches, with each said electro-mechanical relay being associated with a corresponding one among the plurality of solid state shunting switches, and further comprising network client means for independently receiving a power control message for each said electro-mechanical relays and its corresponding solid state shunting switch.

27. (Previously Presented) The power controller of claim 23 also comprising a plurality of said electro-mechanical relays and a plurality of solid state shunting switches, with each said electro-mechanical relay being associated with a corresponding one among the plurality of solid sate shunting switches, and further comprising network client means for independently receiving a power control message for each said electro-mechanical relays and its corresponding solid state shunting switch.

28. (Previously Presented) The power controller of claim 23 also including network client means for receiving a power control message over a communication network, said network client means being in communication with said timing controller.

29. (Previously Presented) The power controller of claim 24 also including network client means for receiving a power control message over a communications network, said network client means being in communication with said timing controller.

30. (Currently amended) The power controller of claim [[26]] 25 also including network client means for receiving a power control message over a communications network, said network client means being in communication with said timing controller.

31. (Previously Presented) The power controller of claim 26 also including network client means for receiving a power control message over a communications network, said network client means being in communication with said timing controller.

32. (Previously Presented) An active arc suppression circuit of the type for suppressing an arc across electro-mechanical elements in a circuit, the active arc suppression circuit comprising in combination:

A. an electro-mechanical switch disposed between a current input and a current output within and adjacent one another in a circuit, the electro-mechanical switch having a first electro-mechanical contact connected to the current input and a second electro-mechanical contact connected to the current output;

B. a solid state shunt switch disposed within the circuit and connected to the current input and the current output in said circuit;

C. a shunt timing controller connected to the solid state shunt switch; and

D. a delay timing controller connected to the electro-mechanical switch.

33. (Previously Presented) The active arc suppression circuit of claim 32 wherein the shunt timing controller provides shunt means for activating the solid state shunt switch to shunt current between the current input and current output for a predetermined period.

34. (Previously Presented) The active arc suppression circuit of claim 32 wherein the delay timing circuit provides relay means for activating the electro-mechanical switch after the shunt activation means has activated the solid state shunt switch to shunt current between the current input and current output for a predetermined period.

35. (Previously Presented) The active arc suppression circuit of claim 33 wherein the delay timing circuit provides relay means for activating the electro-mechanical switch after the shunt activation means has activated the solid state shunt switch to shunt current between the current input and current output for a predetermined period.